

DISCUSSION OF AMENDMENT

Claims 33, 44 and 45 have each been amended to insert that the removal of water in the extruder is --by using at least one selected from the group consisting of a dewatering slit and a dewatering hole-- as supported by, for example, Claim 38. Claim 37 has been amended by deleting the embodiment of removing water in the form of vapor water. Claims 39-43 and 59 have been canceled.

No new matter is believed to have been added by the above amendment. With entry thereof, Claims 33-38, 44-58 and 60-61 will be pending in the application.

REMARKS

The rejection of Claims 33-61 under 35 U.S.C. § 103(a) as unpatentable over EP 0930339 (Ninomiya I) in view of EP 0892006 (Ninomiya II), and US 4,547,329 (Dombroski et al), is respectfully traversed.

The present invention relates to a process for producing an ethylene-vinyl alcohol copolymer (EVOH) resin with good thermal stability and a low production cost, a process for producing resin pellets, and resin pellets obtained by the process.

As acknowledged by Applicants, water has been a significant culprit regarding problems in prior art extrusion processes of EVOH resin pellets. Water has been adjusted by either immersing the EVOH resin in a water bath or drying the EVOH resin, but these methods result in a non-uniform amount of water inside and outside the resultant EVOH resin pellet, or the residue of catalyst is not effectively removed from the EVOH resin, thus requiring a relatively large washing bath. When EVOH resin pellets have had their water amount adjusted in this way, and then subjected to melt molding, motor torque and torque variation at the time of melt molding is increased, and products obtained by molding the pellets are deficient. The present invention allows for the use of a relatively smaller amount of washing, and motor torque and torque variation at the time of melt molding is comparatively smaller, resulting in excellent extruding stability. Moreover, a film so melt-molded has a relatively smaller amount of catalyst residue, fewer gel and hard spots, and less coloring.

Applicants have disclosed comparative data in the specification demonstrating superiority of the present invention; the data is shown in Examples 1-23, which are according to the present invention, and Comparative Examples 1-16, which are not. The results are described in the specification at pages 30-61 thereof, and shown in tabular form in Tables 1-20. The data in Table 6, for Examples 5-9, compared to Comparative Examples 3-5, are

particularly pertinent for Claim 33. The data in Tables 11 and 12, for Examples 11-14, compared to Comparative Examples 7-9, are particularly pertinent for Claim 37.

In the previous Office Action, the Examiner relied on the combination of Ninomiya I and Ninomiya II alone. Applicants traversed that rejection, with reasons as to why this combination of references did not render the invention unpatentable. The Examiner now additionally relies on Dombroski et al, and makes the Office Action "Final," finding as justification that Applicants' amendment filed August 5, 2005 (previous amendment) necessitated the new ground of rejection. As will be discussed after traversal of this rejection, Applicants' amendment did **not** necessitate the new ground of rejection.

Dombroski et al discloses a discovery that water can be used to plasticize EVOH sufficiently to extrude and pelletize the copolymer at relatively low temperatures, thus eliminating the need for precipitating the copolymer in organic solvents and melting the copolymer, thereby overcoming undesirable effects of excessive heat such as discoloration (column 1, lines 41-47). Dombroski et al discloses a process for formation of, for example, EVOH pellets which comprises mixing particles of the EVOH with water to obtain a wet cake containing about 20-70% solids by weight to thereby obtain a plasticized mass of the copolymer, thereafter extruding the water-plasticized copolymer at a temperature substantially below the boiling point of water through a nozzle to form a rod, and dividing the rod into individual pellets (column 1, lines 50-59). Dombroski et al discloses further that their invention also comprises dewatering the EVOH filter cake followed by extrusion of the water-wet filter cake, wherein the dewatering step removes the bulk, or easily removed, water from the wet EVOH/water filter cake (column 4, lines 49-53). Example 2 therein exemplifies dewatering the filter cake from a solids content of approximately 24% (76% water) to approximately 36% solids (64% water) (column 5, lines 47-50). Example 3 exemplifies

drying the wet cake starting material completely (column 6, lines 3-4), meaning that the water content is zero prior to extrusion.

Dombroski et al does not remedy any of the deficiencies resulting from the combination of Ninomiya I and Ninomiya II, as discussed in the previous amendment, and repeated below. While the Examiner finds that Dombroski et al "teaches adjusting the amount of water in the extruder," Dombroski et al's description with respect to adjusting water content is more limited, as discussed above, and indeed, as discussed in further detail below, Dombroski et al neither discloses nor suggests adjusting water content **in the extruder**. Moreover, since Dombroski et al discloses removing the bulk or easily removed water, it must be assumed that Dombroski et al is concerned with simply removing water on the surfaces of the pellets. In addition, it is clear from the above-discussed description in Dombroski et al that the extruding step and the dewatering step are separate steps, and it is thus clear that the amount of water is not adjusted in the extruder.

The Examiner also relies on Example 4 of Dombroski et al but, as described therein, a highly porous pellet resulted due to inadequate water removal with the existing equipment configuration (column 6, lines 18-20), thus teaching away from carrying out Dombroski et al's invention. Nor is it clear precisely how much water is removed in Example 4 but it is obviously insufficient. Clearly, there could be no motivation to combine the failed experiment of Dombroski et al with any other prior art. Nevertheless, water removed from the vent in Example 4 would appear to be water vapor. Water vapor has been deleted from the present claims.

As pointed out in the previous amendment, while Ninomiya I discloses an EVOH copolymer having a particular water content, i.e., 20-80% by weight, and then subjecting it, after combining with its additive components, to a fluidized state drying and then to a stationary state drying, Ninomiya I does not disclose the particular conditions for the process

of the present claims, as conceded by the Examiner. While Ninomiya II discloses extrusion of EVOH pellets and varied adjustments of water content, Ninomiya II neither discloses nor suggests adjusting the amount of water **in the extruder**.

Clearly, Dombroski et al adds nothing relevant, as far as the presently-claimed invention is concerned, to the combined disclosures of Ninomiya I and Ninomiya II.

Finally, to highlight the fact that the applied prior art does not disclose or suggest water adjustment in the extruder, Claim 33 (and thus claims dependent thereon) now requires that removal of water in the extruder be carried out "by using at least one selected from the group consisting of a dewatering slit and a dewatering hole." Obviously, the extruders of the applied prior art have no need for, and thus do not contain, such a structure.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

Applicants **again** respectfully call the Examiner's attention to the Information Disclosure Statement (IDS) filed May 19, 2005. The Examiner is respectfully requested to initial the Form PTO 1449 submitted therewith, and include a copy thereof with the next Office communication. A copy of said PTO 1449 is **submitted herewith**.

As alluded to above, Applicants respectfully traverse the finality of the Office Action because the previous amendment did **not** necessitate the new ground of rejection. The amendments made to the pending claims therein were essentially non-substantive, i.e., claim scope was not substantially changed. Nor did the newly-added claims therein introduce limitations not otherwise present in the then-pending claims. If the Examiner considered Dombroski et al to be material, this reference could have and should have been applied against the claims, prior to the previous amendment.

In addition, the arguments made in the previous amendment against the combination of Ninomiya I and Ninomiya II are still pertinent to the new ground of rejection, which relies on these two references and additionally Dombroski et al. The Examiner's failure to address

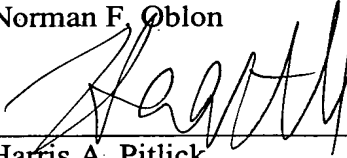
these arguments is inconsistent with the requirements of 37 C.F.R. § 1.104(b) that the Examiner's action be complete as to all matters; the Office Action fails to materially advance the prosecution herein, since Applicants are deprived of any findings on arguments previously made but still relevant.

Accordingly, if the present amendment does not result in a Notice of Allowance, then the Examiner is respectfully requested to withdraw the finality of the Office Action, and enter this amendment as a matter of right.

All of the presently-pending claims in this application are believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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